Amendments to the Claims

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

Claims 1-51 (Cancelled)

52. (Currently Amended) A tyre for a vehicle wheel comprising:

a carcass structure shaped in a substantially toroidal configuration, the opposite lateral edges of which are associated with respective right-hand and left-hand bead wires to form respective beads;

a belt structure applied in a radially external position with respect to said carcass structure;

a tread band radially superimposed on said belt structure;

at least one layer of crosslinked elastomeric material applied in a radially internal position with respect to said tread band; and

a pair of sidewalls applied laterally on opposite sides with respect to said carcass structure,

wherein said at least one layer of crosslinked elastomeric material has the following characteristics:

a dynamic elastic modulus, measured at 70°C, not lower than 20 MPa; ~~and~~

a ratio between tensile modulus at 100% elongation and tensile modulus at 10% elongation not lower than 1.5; and

a percentage variation of tensile modulus at 10% elongation, measured in a direction substantially parallel to the equatorial plane of the tyre, with respect to tensile

modulus at 10% elongation, measured in a direction substantially perpendicular to the equatorial plane of the tyre, not higher than 20%.

53. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a dynamic elastic modulus, measured at 70°C, of 25 MPa to 50 MPa.

54. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a ratio between tensile modulus at 100% elongation and tensile modulus at 10% elongation of 2 to 5.

55. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a dynamic elastic modulus, measured at 23°C, not lower than 30 MPa.

56. (Previously Presented) The tyre for a vehicle wheel according to claim 55, wherein said at least one layer of crosslinked elastomeric material has a dynamic elastic modulus, measured at 23°C, of 35 MPa to 70 MPa.

57. (Canceled)

58. (Currently Amended) The tyre for a vehicle wheel according to claim ~~57~~ 52, wherein said at least one layer of crosslinked elastomeric material has a percentage variation of tensile modulus at 10% elongation, measured in a direction substantially parallel to the equatorial plane of the tyre, with respect to tensile modulus at 10% elongation, measured in a direction substantially perpendicular to the equatorial plane of the tyre, not higher than 15%.

59. (Previously Presented) The tyre for a vehicle wheel according to claim 58, wherein said at least one layer of crosslinked elastomeric material has a percentage variation of tensile modulus at 10% elongation, measured in a direction substantially parallel to the equatorial plane of the tyre, with respect to tensile modulus at 10% elongation, measured in a direction substantially perpendicular to the equatorial plane of the tyre, not higher than 5%.

60. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material has a thickness lower than 2 mm.

61. (Previously Presented) The tyre for a vehicle wheel according to claim 60, wherein said at least one layer of crosslinked elastomeric material has a thickness of 0.5 mm to 1.5 mm.

62. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material is placed between said tread band and said belt structure.

63. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material is placed between said belt structure and said carcass structure.

64. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said at least one layer of crosslinked elastomeric material is formed by a plurality of coils of a continuous elongated element.

65. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein said elastomeric material comprises:

(a) at least one diene elastomeric polymer; and

(b) at least one layered inorganic material having an individual layer thickness of 0.01 nm to 30 nm.

66. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material has an individual layer thickness of 0.05 nm to 15 nm.

67. (Previously Presented) The tyre for a vehicle wheel according to claim 66, wherein the layered inorganic material has an individual layer thickness of 0.1 nm to 2 nm.

68. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material is present in the elastomeric material in an amount of 1 phr to 120 phr.

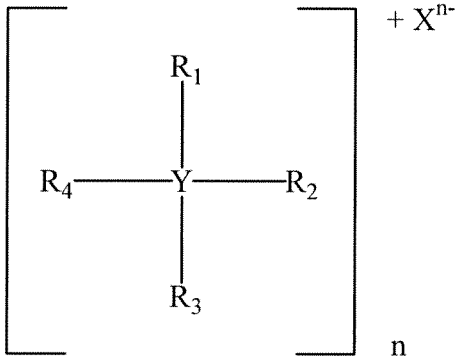
69. (Previously Presented) The tyre for a vehicle wheel according to claim 68 wherein the layered inorganic material is present in the elastomeric material in an amount of 5 phr to 80 phr.

70. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material is selected from phyllosilicates, smectites, montmorillonite, nontronite, beidellite, volkonskoite, hectorite, saponite, sauconite, vermiculite, halloisite, sericite, or mixtures thereof .

71. (Previously Presented) The tyre for a vehicle wheel according to claim 70, wherein the layered inorganic material is montmorillonite.

72. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the layered inorganic material is treated with a compatibilizer.

73. (Previously Presented) The tyre for a vehicle wheel according to claim 72, wherein the compatibilizer is selected from the quaternary ammonium or phosphonium salts having general formula (I):



(I)

wherein:

Y represents N or P;

R_1, R_2, R_3 and R_4, which may be identical or different, represent a linear or branched C_1-C_{20} alkyl or hydroxyalkyl group; a linear or branched C_1-C_{20} alkenyl or hydroxyalkenyl group; a group -R_5-SH or -R_5-NH wherein R_5 represents a linear or branched C_1-C_{20} alkylene group; a C_6-C_{18} aryl group; a C_7-C_{20} arylalkyl or alkylaryl group; a C_5-C_{18} cycloalkyl group, said cycloalkyl group optionally containing a hetero atom, oxygen, nitrogen or sulphur;

X^{n-} represents an anion, chlorine ion, sulphate ion or phosphate ion, and

n represents 1, 2 or 3.

74. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the diene elastomeric polymer has a glass transition temperature below 20°C.

75. (Previously Presented) The tyre for a vehicle wheel according to claim 74, wherein the diene elastomeric polymer is selected from: natural or synthetic cis-1,4-polyisoprene, 3,4-polyisoprene, polybutadiene, optionally halogenated isoprene/isobutene copolymers, 1, 3-butadiene/acrylonitrile copolymers, styrene/1,3-butadiene copolymers, styrene/isoprene/1,3-butadiene copolymers, styrene/1, 3-butadiene/acrylonitrile copolymers, or mixtures thereof.

76. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material comprises at least 10% by weight with respect to the total weight of the at least one diene elastomeric polymer of natural rubber

77. (Previously Presented) The tyre for a vehicle wheel according to claim 76, wherein the elastomeric material comprises 20% by weight to 100% by weight with respect to the total weight of the at least one diene elastomeric polymer of natural rubber.

78. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the elastorneric material further comprises at least one elastomeric polymer of one or more monoolefins with an olefinic comonomer or derivatives thereof.

79. (Previously Presented) The tyre for a vehicle wheel according to claim 78, wherein the elastomeric polymer is selected from: ethylene/propylene copolyrners,

ethylene/propylene/diene copolymers, polyisobutene, butyl rubbers, halobutyl rubbers, or mixtures thereof.

80. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material comprises at least one carbon black filler.

81. (Previously Presented) The tyre for a vehicle wheel according to claim 80, wherein the carbon black filler has a surface area of not less than 20 m^2/g (determined by CTAB absorption as described in Standard ISO 6810:1995).

82. (Previously Presented) The tyre for a vehicle wheel according to claim 80, wherein the carbon black filler is present in the elastomeric material in an amount of 0.1 phr to 120 phr.

83. (Previously Presented) The tyre for a vehicle wheel according to claim 82, wherein the carbon black filler is present in the elastomeric material in an amount of 20 phr to 90 phr.

84. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein the elastomeric material comprises at least one silane coupling agent.

85. (Previously Presented) The tyre for a vehicle wheel according to claim 84, wherein the silane coupling agent is selected from a group having at least one hydrolizable silane group which may be identified by the following general formula (II):

$(R)_3Si\text{-}C_nH_{2n}\text{-}X$ (II)

wherein the groups R, which may be identical or different, are selected from: alkyl, alkoxy or aryloxy groups or from halogen atoms, on condition that at least one of

the groups R is an alkoxy or aryloxy group; n is an integer between 1 and 6 inclusive; X is a group selected from: nitroso, mercapto, amino, epoxide, vinyl, imide, chloro, $-(S)_mC_nH_{2n}-Si-(R)_3$ or -S-COR in which m and n are integers between 1 and 6 inclusive and the groups R are defined as above.

86. (Previously Presented) The tyre for a vehicle wheel according to claim 84, wherein the silane coupling agent is present in the elastomeric material in an amount of 0.01. phr to 10 phr.

87. (Previously Presented) The tyre for a vehicle wheel according to claim 86, wherein the silane coupling agent is present in the elastomeric material in an amount of 0.5. phr to 5 phr.

88. (Previously Presented) The tyre for a vehicle wheel according to claim 65, wherein at least one additional reinforcing filler is present, in an amount of 0.1 phr to 120 phr, in the elastomeric material.

89. (Previously Presented) The tyre for a vehicle wheel according to claim 88, wherein the reinforcing filler is silica.

90. (Previously Presented) The tyre for a vehicle wheel according to claim 88, wherein at least, one silane coupling agent is present.

91. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 23°C, of 5 MPa to 25 MPa.

92. (Previously Presented) The tyre for a vehicle wheel according to claim 91, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 23°C, of 7 MPa to 20 MPa.

93. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at 100°C, of 3 MPa to 10 MPa.

94. (Previously Presented) The tyre for a vehicle wheel according to claim 93, wherein the tread band is formed by a crosslinked elastomeric material having a dynamic elastic modulus, measured at l00°C, of 3.5 MPa to 8 MPa.

95. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastorneric material having a Tan delta, measured at 23°C, of 0.20 to 0.90.

96. (Previously Presented) The tyre for a vehicle wheel according to claim 95, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 23°C, of 0.30 to 0.70.

97. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 100°C, of 0.10 to 0.35.

98. (Previously Presented) The tyre for a vehicle wheel according to claim 97, wherein the tread band is formed by a crosslinked elastomeric material having a Tan delta, measured at 100°C, of 0.15 to 0.30.

99. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 23°C, of 65 to 85.

100. (Previously Presented) The tyre for a vehicle wheel according to claim 99, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 23°C, of from 70 to 80.

101. (Previously Presented) The tyre for a vehicle wheel according to claim 52, wherein the tread band is formed by a crosslinked elastorneric material having an IRHD hardness, measured at 100°C, of 45 to 75.

102. (Previously Presented) The tyre for a vehicle wheel according to claim 101, wherein the tread band is formed by a crosslinked elastomeric material having an IRHD hardness, measured at 100°C, of 55 to 66.